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| 10/550,157  | 09/20/2005  | Majd Alwan           | 21764L-001100US     | 5323             |
| 20350   | 7590        | 05/11/2010           |                     |                  |
| TOWNSEND AND TOWNSEND AND CREW, LLP<br>TWO EMBARCADERO CENTER<br>EIGHTH FLOOR<br>SAN FRANCISCO, CA 94111-3834 |             |                      | EXAMINER            | PANI, JOHN       |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 3736                |                  |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                     |
|------------------------------|--------------------------------------|-------------------------------------|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/550,157 | <b>Applicant(s)</b><br>ALWAN ET AL. |
|                              | <b>Examiner</b><br>JOHN PANI         | <b>Art Unit</b><br>3736             |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 01 February 2010.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-11,13,15,16,18-32 and 34-43 is/are pending in the application.  
 4a) Of the above claim(s) 24-30,32,34 and 40 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-11,13,15,16,18-23 and 41-43 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsman's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/1/2010 has been entered.

***Response to Arguments***

2. Applicant's arguments, see pg. 14, first paragraph, filed 2/1/2010, with respect to claims 1-4, 7-9, 12, 13, 15, 16, and 19-23 as rejected under 35 U.S.C. 103(a) by Varecka in view of Berger have been fully considered and are persuasive. The rejection of 11/2/09 has been withdrawn.

3. Applicant's remaining arguments filed 2/1/2010 have been fully considered but they are not persuasive. In response to Applicants' arguments regarding the rejection of claims 1-23 and 43 under 35 U.S.C. 112 first paragraph, the Examiner respectfully disagrees. While the original disclosure appears to provide support for a processor configured to determine gait characteristics based on the at least one signal from a signal sensor as argued by Applicant, claim 1 requires "from only one sensor module", which limits the invention to a processor which is incapable of determining gait

characteristics from more than one sensor module, and which is at no point found in the original disclosure.

4. In response to Applicant's arguments regarding the rejection of claims 1-9, 12-16, 18-23, 42, and 43 under 35 U.S.C. 102(e) over Takiguchi, the Examiner respectfully disagrees. Applicant appears to take issue with the Examiner's interpretation of the limitation "a sensor module configured to touch an upper surface of a floor" to mean "capable of touching an upper surface of a floor". Particularly, the Applicant states that this "analysis is incorrect". In support of this assertion, Applicant argues that "Applicant is not required to recite that the sensor is actually touching an upper surface of a floor in order to give this feature patentable weight" and that "this would be an unreasonable limitation to insist upon for a product that is presumably packaged, and not 'touching an upper surface of a floor' until the product is in use". Thus the Examiner contends that the Applicant at least admits that the limitation does not require that the sensor module is actually touching an upper surface of a floor, but believes that "configured to touch an upper surface of a floor" requires some particular (but never explicitly detailed) structure. Applicant states that "configured to touch an upper surface of a floor, is a recognized manner of phrasing structural limitations, and is clearly described in Applicants' disclosure". While it may be common to use the term "configured to/for", to imply some structural limitations, it is noted that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). It is unclear exactly what structure is required by "configured to touch an upper surface of the floor",

but the Examiner maintains that the broadest reasonable interpretation is that the device is sized and shaped in a manner that the module could be placed in this position, and that either the watch or cell phone of Takiguchi clearly could be. In response to Applicant's assertion that "Takiguchi does not discuss, for example, the microphone 10 in any way that would reasonably suggest the microphone as touching a floor surface, particularly not when any corresponding 'housing' is placed on the floor surface in a freestanding position", the Examiner first notes that the claim does not require the microphone to be "touching a floor surface", but merely that it be configured to touch the floor surface (i.e. capable of touching the floor surface). As shown in Figs. 19A and 19B and in [0143], the microphone is clearly on the exterior surface of the watch or microphone (with the rest of the watch or microphone acting as a housing). The term "free-standing" has been interpreted to merely require that the housing has some structural component. This microphone could clearly be placed to touch the floor by placing the watch or phone face-down on the floor.

5. In response to Applicant's assertions that "[m]erely displaying a frequency spectrum of sound vibrations does not teach the feature of a processor configured to distinguish between steps of the human being and a fall of the human being, as now recited in claim 1", the Examiner respectfully disagrees. First, it is noted that this is offered as a mere assertion of fact, and that no rationale is provided for this conclusion. Second, the Examiner notes that the term "distinguish" as used is generally defined as "to indicate or show a difference (usually fol. by *between*)" ("distinguish between.")

6. In response to Applicant's argument that "walking down stairs is a controlled fall and is distinguished from regular steps" is an incorrect assertion, the Examiner respectfully disagrees. It is noted that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). While the claims do not recite "a controlled fall", neither do they recite "an uncontrolled fall" or "leaving an erect position suddenly and involuntarily...a hazardous situation that may require alerting care providers". Further, one accepted definition of the term "fall" is "to drop or descend under the force of gravity, as to a lower place through loss or lack of support" ("fall." Dictionary.com Unabridged. Random House, Inc. 07 May. 2010. <[Dictionary.com](http://dictionary.reference.com/browse/fall) <http://dictionary.reference.com/browse/fall>>), which would appear to be descriptive of walking down stairs. Thus the Examiner maintains that this interpretation is proper.

7. In response to Applicant's arguments regarding claim 21 that Takiguchi does not disclose "recognize data that is consistent with the fall of a human body" because "Takiguchi system does not acknowledge an acquaintance with, or recognize that the data as consistent with, the fall of the human body", the Examiner respectfully

disagrees. First, the Examiner notes that the claim does not require that the device recognize *that data is consistent* with the fall of a human body, but instead requires that the device recognize data *that is consistent* with the fall of a human body. In other words, the device is merely required to be able to process data consistent with the fall of a human body. While the Examiner maintains that the Takiguchi further discloses that the device recognizes *that data is consistent* with the fall of a human body (by virtue of indicating footsteps and walking downstairs as detailed in the statement of rejection below and in [0145]), the device clearly at least recognizes data that is consistent with the fall of a human body, as it accepts vibrations as input, and this type of data is consistent with many types of falls of a human body. In response to Applicant's assertion that "displaying a frequency spectrum does not correspond to providing a notification of a fall based on any recognized data", the Examiner respectfully disagrees, and reiterates that for the data to be used to make the frequency spectrum, it must have been recognized by the processor, and displaying a spectrum corresponding to a fall is providing a notification of that fall (as is indicating a number of steps). In response to Applicant's assertion that the "Office Action's interpretation of a step as a fall of a human body is contrary to the ordinary and customary meaning of these terms", the Examiner notes that the broadest reasonable interpretation is to be applied to claim limitations. The Examiner further submits that a foot hitting the ground could fairly be broadly interpreted as a fall of a human body, because: a footprint is a descent under the force of gravity; a broad definition of body is "a mass"; and a foot of a person is "human".

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-11, 13, 15, 16, 18-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 includes the limitation "based on the at least one signal from only a single sensor module". This limitation does not appear to be supported by the original disclosure, as at no point does the disclosure state that the invention is such that gait characteristics are "based on the signal from only a single sensor module". In fact, the specification seems to support the fact that the invention can in fact base gait characteristics on multiple single sensor modules, as evidenced at least by claims 10, 11, 29, and 30 (which include using rate-of-travel detectors which appear to be separate sensor modules based on Fig. 2). Further, the original disclosure does not appear to state that the signal from only a single vibration/acceleration/deflection sensor module is used. In other words, the claim appears to require that the device is incapable of determining gait characteristics with more than one sensor module, which the original disclosure does not support because embodiments are disclosed in which multiple sensors are used.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-9, 12-16, 18-23, 42, and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2002/0107649 to Takiguchi et al. ("Takiguchi").

12. Takiguchi teaches:

In reference to Claim 1

A gait monitoring system for monitoring gait characteristics of a subject, said system comprising: a sensor module (at least 10) configured to touch an upper surface of a floor (note that the limitation "configured to touch an upper surface of a floor" has been interpreted to mean "capable of touching an upper surface of a floor" in light of Applicant's amendment deleting "touching"; either of Fig. 19A or 19B could be placed on the upper surface of a floor), the sensor module configured to detect at least one of floor acceleration, floor vibration, and floor deflection and to provide at least one of acceleration, vibration, and deflection signal (see at least [0051-0052]), wherein the subject can walk on the upper surface of the floor in proximity to said sensor module; and a processor module (13 or various routines which 13 controls/performs) that is configured to analyze the at least one of acceleration, vibration, and deflection signal

and to determine gait characteristics based on the signal, wherein the processor module is configured to determine the gait characteristics based on the signal from only a signal sensor module (see [0055-0154]); and the processor is configured to distinguish between steps of a human being and a fall of a human being (see Figs. 2-5, the processor produces visual outputs of the frequency spectrum of the sound vibrations, these frequency graphs would distinguish between steps and a fall in the sense that the data from the two occurrences would be displayed differently; alternatively, walking downstairs is a controlled fall and is distinguished from regular steps, see [0063]).

In reference to Claim 2

The system of claim 1 (see above) further comprising an output module (15) for receiving data indicative of the gait characteristics.

In reference to Claim 3

The system of claim 1 (see above) wherein said output module comprises at least one of display, alarm, memory storage, communication device, printer, buzzer, PDA, lap top computer, computer, audio or visual alarm, and light (see [0051]).

In reference to Claim 4

The system of claim 3 (see above) wherein said communication device comprises at least one of modem, pager, network interface, Ethernet card, serial communications port, parallel communications port, telephone, and PCMCIA slot and card (Fig. 19B).

In reference to Claim 5

The system of claim 1 (see above) wherein said sensor module and processor module are in wireless communication (see [0150]).

In reference to Claim 6

The system of claim 5 (see above) wherein said wireless communication comprises at least one of RF link, an infrared, cellular phone line, optical and electromagnetic (see [0150]).

In reference to Claim 7

The system of claim 1 (see above) wherein said sensor module and processor module are in a hard wired communication (see [0150]).

In reference to Claim 8

The system of claim 7 (see above) wherein said hard wired communication comprises at least one of electronic, integrated circuit, electromagnetic, wire, cable, fiber optics, a phone line, twisted pair, and coaxial (see [0150]).

In reference to Claim 9

The system of claim 1 (see above) further comprising a rate-of-travel detector to determine the rate of travel of the subject (see [0108]).

In reference to Claim 13

The system of claim 1 (see above) wherein said gait characteristics of the subject includes at least two of step count, pace, normal gait condition, limp, shuffle, and falls (see [0059-0150]).

In reference to Claim 15

The system of claim 1 (see above) further comprising an archival storage module (14).

In reference to Claim 16

The system of claim 15 (see above) wherein the processor module is configured to perform at least two of longitudinal analysis of gait characteristics, pattern recognition, and identification determination, wherein identification determination associates gait characteristics with a particular subject; and said archival storage module stores the at least two of longitudinal analysis of gait characteristics, pattern recognition, and identification determination (see [0129-0140]).

In reference to Claim 18

The system of claim 1 (see above) further comprising a second processor module, wherein said second processor module is configured to analyze gait characteristics, pattern recognition, and identification determination data, the identification determination data associating gait characteristics with a particular subject (see [0129-0140], the term "processor module" is interpreted such that it could be either a physical processor, or actions run by a processor; in this second interpretation, the routines claimed as the actions of the "second processor module" are the "second processor module" and the other routines are "the processor module").

In reference to Claim 19

The system of claim 1 (see above) wherein the subject is one of a human and an animal (could be used with either).

In reference to Claim 20

The system of claim 1 (see above) wherein the subject is an animate or inanimate object (could be used with either).

In reference to Claim 21

The system of claim 1 (see above) further comprising a fall module configured to: process data received from said sensor module; recognize data that is consistent with the fall of a human body; and provide notification of a fall based on the recognized data (Note that a step is a fall of a human body, as it is the human's weight being transferred to the ground against gravity; herein the "fall module" is interpreted as the actions of the analyzer which input the microphone data and output the frequency spectrum. The analyzer clearly "recognizes" this data in the sense that it inputs it and converts it to a frequency spectrum which is output. The frequency spectrum itself is a "notification of a fall" if it displays the information from a fall. Alternatively, walking downstairs is essentially a controlled fall).

In reference to Claim 22

The system of claim 1 (see above) further comprising a step module configured to process data received from said sensor module (see [0075]).

In reference to Claim 23

The system of claim 1 (see above) further comprising a second processor module in communication with said system (note that 13 performs/controls multiple routines which could be interpreted as separate "processor modules").

In reference to Claim 42

A gait monitoring system, said system comprising: a sensor device comprising: a housing (see Figs. 19A, 19B) configured to be placed on a floor surface in a free-standing position (capable of this); and a sensor (10) configured to touch the floor surface (capable of this); detect at least one of floor acceleration, floor vibration, and floor deflection (see [0052-0053]); and generate a signal based on the detected at least one of floor acceleration, floor vibration, and floor deflection (see [0054]); a processor unit (13) configured to communicate with the sensor device and determine gait characteristics based on the signal, the determined gait characteristics including identifying at least two of a normal gait characteristic (i.e. walking), an abnormal gait characteristic (i.e. running) and a human body fall (i.e walking downstairs; see [0057-0150]); and an output device (15) configured to output the determined gait characteristics, the output including different outputs (see Fig. 5 and [0063]) for the at least two of normal gait characteristic, abnormal gait characteristic, and human body fall.

In reference to Claim 43

The system of claim 42 (see above) wherein the processor unit is configured to determine the gait characteristics based on the signal from only a single sensor device (13 bases gait characteristics on a signal from 10).

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3736

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takiguchi as applied to claim 9 above, and further in view of US Pat. No. 6,006,165 to Okada ("Okada").

Takiguchi teaches the system of claim 9 (see above) but do not expressly disclose a rate-of-travel detector with a plurality of beam breaks, floor switches, or door switches. Okada teaches a speed measuring apparatus that uses a plurality of beam breaks (see col. 3 lines 1-45). It would have been obvious to one having ordinary skill in the art at the time of the invention to have added a speed measuring device with a plurality of beam breaks in order to allow duplicity of speed measurements, thereby increasing/verifying the system accuracy.

15. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takiguchi as applied to claims 9 above, and further in view of US Pat. No. 5,831,937 to Weir et al. ("Weir").

Takiguchi teaches the system of claim 9 (see above) but does not explicitly disclose using a rate-of-travel detector using ultrasonic communication. Weir teaches a gait analysis system with a rate-of-travel detector that uses ultrasound and infrared (see col. 4 line 65-col. 5 line 44). It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the system of Takiguchi by adding a

rate-of-travel detector similar to that of Weir because this would allow for duplicit of speed measurements, thereby increasing the systems accuracy.

16. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takiguchi as applied to claim 1 above, and further in view of US Pat. No. 5,081,297 to Lebel et al. ("Lebel").

Takiguchi teaches an analyzer which accomplishes the steps which claim 41 requires but does not explicitly teach that the analyzer uses computer program product comprising computer usable medium having computer logic embedded thereon for enabling a processor in a computer system to cause the computer system to carry out these steps. It is unclear whether Takiguchi uses hardware or software. Lebel teaches (see col. 3 lines 20-35) that replacing hardware with software allows for a space-saving design. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have made Takiguchi such that it had a processor and software which caused the processor to carry out the steps of the analyzer in order to provide a space-saving design over a hardware/circuitry based design as taught by Lebel.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN PANI whose telephone number is (571)270-1996. The examiner can normally be reached on Monday-Friday 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on 571-272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JP/ 5/7/10

/Max Hindenburg/  
Supervisory Patent Examiner, Art Unit 3736